

**AMENDMENTS TO THE CLAIMS**

WHAT IS CLAIMED IS:

1. (original) A neutron detection device comprising:  
  
an active semiconductor layer including a plurality of charge-sensitive cells;  
  
and  
  
a neutron conversion layer located in close proximity to the cells.
2. (original) A neutron detection device as claimed in claim 1, further comprising an insulating layer located between the active semiconductor layer and the neutron conversion layer.
3. (original) A neutron detection device as claimed in claim 1, further comprising a barrier layer located between the neutron conversion layer and the active semiconductor layer.
4. (original) A neutron detection device as claimed in claim 3, wherein the barrier layer comprises silicon nitride.
5. (original) A neutron detection device as claimed in claim 1, wherein the neutron conversion layer comprises boron.
6. (currently amended) A neutron detection device as claimed in claim 1, wherein the neutron conversion layer comprises ~~borosilicate~~ boron-containing glass.
7. (currently amended) A neutron detection device as claimed in claim 6, wherein the ~~borosilicate~~ boron-containing glass includes 5% boron.
8. (original) A neutron detection device as claimed in claim 1, wherein the neutron conversion layer includes lithium.

9. (original) A neutron detection device as claimed in claim 1, further comprising a second neutron conversion layer formed in proximity to the active semiconductor layer.
10. (original) A neutron detection device as claimed in claim 9, wherein one of the neutron conversion layers comprises boron and the other of the neutron conversion layers comprises lithium.
11. (original) A method of manufacturing a neutron detector from a memory device, wherein the memory device includes an layer active semiconductor layer, a base substrate and an insulating layer between the active semiconductor layer and the base substrate, the method comprising:  
  
removing the base substrate layer from a memory device to expose the insulating layer; and  
  
forming a neutron conversion layer on the insulating layer.
12. (original) A method of manufacturing a neutron detector from a memory device as claimed in claim 11, further comprising forming a barrier layer on the insulating layer prior to forming the neutron conversion layer.
13. (original) A method of manufacturing a neutron detector from a memory device as claimed in claim 11, further comprising forming a second neutron conversion layer on the neutron conversion layer.
14. (original) A method of manufacturing a neutron detector from a memory device as claimed in claim 11, wherein the neutron conversion layer comprises boron.

15. (original) A method of manufacturing a neutron detector from a memory device as claimed in claim 13, wherein the neutron conversion layer formed on the insulating layer comprises boron and the second neutron conversion layer comprises lithium.
16. (original) A method of manufacturing a neutron detector from a memory device, wherein the memory device includes an active semiconductor layer, a base substrate and an insulating layer between the active semiconductor layer and the base substrate, the method comprising:  
  
removing the base substrate layer and the insulating layer from the memory device; and  
  
forming a neutron conversion layer on the active semiconductor layer.
17. (original) A method of manufacturing a neutron detector from a memory device as claimed in claim 16, further comprising forming a barrier layer on the active semiconductor layer prior to forming the neutron conversion layer.
18. (original) A method of manufacturing a neutron detector from a memory device as claimed in claim 16, further comprising forming a second neutron conversion layer on the neutron conversion layer formed on the active semiconductor layer.
19. (original) A method of manufacturing a neutron detector from a memory device as claimed in claim 16, wherein the neutron conversion layer comprises boron.
20. (original) A method of manufacturing a neutron detector from a memory device as claimed in claim 18, wherein the neutron conversion layer

formed on the insulating layer comprises boron and the second insulating layer comprises lithium.

21. (new) A neutron detection device comprising:

an active semiconductor layer including a plurality of charge-sensitive cells;  
and

a neutron conversion layer located under the active semiconductor layer.

22. (new) A neutron detection device as claimed in claim 21, further comprising an insulating layer located between the active semiconductor layer and the neutron conversion layer.
23. (new) A neutron detection device as claimed in claim 21, further comprising a barrier layer located between the neutron conversion layer and the active semiconductor layer.
24. (new) A neutron detection device as claimed in claim 23, wherein the barrier layer comprises silicon nitride.
25. (new) A neutron detection device as claimed in claim 21, wherein the neutron conversion layer comprises boron.
26. (new) A neutron detection device as claimed in claim 21, wherein the neutron conversion layer comprises boron-containing glass.
27. (new) A neutron detection device as claimed in claim 26, wherein the boron-containing glass includes 5% boron.
28. (new) A neutron detection device as claimed in claim 21, wherein the neutron conversion layer includes lithium.

29. (new) A neutron detection device as claimed in claim 21, further comprising a second neutron conversion layer formed in proximity to the active semiconductor layer.
30. (new) A neutron detection device as claimed in claim 29, wherein one of the neutron conversion layers comprises boron and the other of the neutron conversion layers comprises lithium.
31. (new) A neutron detection device comprising:  
  
an active semiconductor layer including a plurality of charge-sensitive cells;  
  
and  
  
a neutron conversion layer adjacent to the active semiconductor layer.
32. (new) A neutron detection device as claimed in claim 31, further comprising an insulating layer located between the active semiconductor layer and the neutron conversion layer.
33. (new) A neutron detection device as claimed in claim 31, further comprising a barrier layer located between the neutron conversion layer and the active semiconductor layer.
34. (new) A neutron detection device as claimed in claim 33, wherein the barrier layer comprises silicon nitride.
35. (new) A neutron detection device as claimed in claim 31, wherein the neutron conversion layer comprises boron.
36. (new) A neutron detection device as claimed in claim 31, wherein the neutron conversion layer comprises boron-containing glass.

37. (new) A neutron detection device as claimed in claim 36, wherein the boron-containing glass includes 5% boron.
38. (new) A neutron detection device as claimed in claim 31, wherein the neutron conversion layer includes lithium.
39. (new) A neutron detection device as claimed in claim 31, further comprising a second neutron conversion layer formed in proximity to the active semiconductor layer.
40. (new) A neutron detection device as claimed in claim 39, wherein one of the neutron conversion layers comprises boron and the other of the neutron conversion layers comprises lithium.
41. (new) A neutron detection device comprising:  
  
an active semiconductor layer including a plurality of charge-sensitive cells;  
and  
  
a neutron conversion layer in contact with the active semiconductor layer.
42. (new) A neutron detection device as claimed in claim 41, further comprising an insulating layer located between the active semiconductor layer and the neutron conversion layer.
43. (new) A neutron detection device as claimed in claim 41, further comprising a barrier layer located between the neutron conversion layer and the active semiconductor layer.
44. (new) A neutron detection device as claimed in claim 43, wherein the barrier layer comprises silicon nitride.

45. (new) A neutron detection device as claimed in claim 41, wherein the neutron conversion layer comprises boron.
46. (new) A neutron detection device as claimed in claim 41, wherein the neutron conversion layer comprises boron-containing glass.
47. (new) A neutron detection device as claimed in claim 46, wherein the boron-containing glass includes 5% boron.
48. (new) A neutron detection device as claimed in claim 41, wherein the neutron conversion layer includes lithium.
49. (new) A neutron detection device as claimed in claim 41, further comprising a second neutron conversion layer formed in proximity to the active semiconductor layer.
50. (new) A neutron detection device as claimed in claim 49, wherein one of the neutron conversion layers comprises boron and the other of the neutron conversion layers comprises lithium.
51. (new) A neutron detection device comprising:
  - an active semiconductor layer including a plurality of charge-sensitive cells;  
and
  - a neutron conversion layer located within a distance from the active semiconductor layer no greater than the range of neutron reactant product particles traversing the distance.
52. (new) A neutron detection device as claimed in claim 51, further comprising an insulating layer located between the active semiconductor layer and the neutron conversion layer.

- 53. (new) A neutron detection device as claimed in claim 51, further comprising a barrier layer located between the neutron conversion layer and the active semiconductor layer.
- 54. (new) A neutron detection device as claimed in claim 53, wherein the barrier layer comprises silicon nitride.
- 55. (new) A neutron detection device as claimed in claim 51, wherein the neutron conversion layer comprises boron.
- 56. (new) A neutron detection device as claimed in claim 51, wherein the neutron conversion layer comprises boron-containing glass.
- 57. (new) A neutron detection device as claimed in claim 56, wherein the boron-containing glass includes 5% boron.
- 58. (new) A neutron detection device as claimed in claim 51, wherein the neutron conversion layer includes lithium.
- 59. (new) A neutron detection device as claimed in claim 51, further comprising a second neutron conversion layer formed in proximity to the active semiconductor layer.
- 60. (new) A neutron detection device as claimed in claim 59, wherein one of the neutron conversion layers comprises boron and the other of the neutron conversion layers comprises lithium.